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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/185,876	11/03/1998	ARNOLD I. KLAYMAN	SRSLABS.217A	1161

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EXAMINER	
OPSASNICK, MICHAEL N	
ART UNIT	PAPER NUMBER
2655	

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7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/185,876	KLAYMAN, ARNOLD I.	
	Examiner	Art Unit	
	Michael N. Opsasnick	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 January 2004* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-71* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-71* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Helf et al (5550924) in view of Klayman (09/185876).

As per claims 1,55, Helf et al (5550924) teaches a system, a communication device, and method (col. 1 lines 5-13) comprising:

"input configured to receive a voice signal that includes spoken words" (abstract, col. 2 lines 52-58);

"an aural filter operatively coupled to said input, said aural filter.....speech frequencies are attenuated with respect to speech frequencies" (as masking frequencies according to psychoacoustic aural curves -- col. 4 lines 31-35);

"a speech expander.....configured to amplify said filter output.....envelope amplitude of said filter output signal" as filtering the signal according to psychoacoustic aural information, and reading the filtered signal to the original signal to obtain a filtered speech signal (col. 3 lines 25-50, col. 4 lines 30-54);

"a combiner configured to combine....produce an enhanced signal representing spoken words" as overlap/adding the filtered signal to the original signal to provide a noise-filtered signal (col. 4 line 40 - col. 5 line 38).

As per claims 1,55, Helf et al (5550924) does not explicitly teach using the envelope gain/amplitude of the filter in the signal processing, however, Lin et al (5953697) teaches this claimed feature (col. 2 lines 43-49). Therefore, it would have been obvious to one of ordinary skill in the art of signal processing to modify the teachings of Helf et al (5550924) with envelope gain because it would be advantageous to smoothen the speech parameters (Lin, col. 2 lines 49-50).

As per claims 2,6,16,26,34,53,54,63, Helf et al (5550924) teaches a transfer function that approximates a loudness curve for human hearing of tones in a sound field (col. 4 lines 25-40).

As per claims 3, and 7, Helf et al (5550924) teach a gain controlled amplifier and envelope detector (as notch finding and attenuation -- Fig. 1)

As per claims 4,8,23,24,43-45, and 70, Helf et al (5550924) teaches changing the decay time constant and attack time constant (col. 10 lines 1-49).

As per claims 5,9,17,64,67, Helf et al (5550924) teaches a voice communication device with possible noise corrupted signals (col. 1 lines 5-13) comprising:

"a sender configured.....communication channel.....voice enhancer" (col. 1 lines 5-25) comprising:

"an aural filter operatively coupled.....said aural filter configured to filter....high frequencies above speech frequencies are attenuated with respect to speech frequencies" as masking frequencies according to psychoacoustic aural curves -- col. 4 lines 31-35;

"a speech expander.....aural filter...an expander signal.....filter output signal" as filtering the signal according to psychoacoustic aural information, and reading the filtered signal to the original signal to obtain a filtered speech signal (col. 3 lines 25-50, col. 4 lines 30-54);

"a combiner configured to combine at least a portion.....to produce an enhance signal" as overlap/adding the filtered signal to the original signal to provide a noise-filtered signal (col. 4 line 40 – col. 5 line 38);

Helf et al (5550924) does not explicitly teach using the envelope gain/amplitude of the filter in the signal processing, however, Lin et al (5953697) teaches this claimed feature (col. 2 lines 43-49). Therefore, it would have been obvious to one of ordinary skill in the art of signal processing to modify the teachings of Helf et al (5550924) with envelope gain because it would be advantageous to smoothen the speech parameters (Lin, col. 2 lines 49-50).

As per claims 10,11,27-31, Helf et al (5550924) teaches the use of the noise suppression in multiple telecommunication devices (col. 1 lines 7-10; col. 1 lines 15-20, col. 2 lines 53-60).

As per claims 12,18,22,25,48,49,58,60,65, Helf et al (5550924) teaches attenuation of the low and high frequencies with respect to the middle frequencies (as masking frequencies emphasizing the low and high end -- col. 4 lines 31-50);

As per claims 13,19,35,36,46,56,61,62, Helf et al (5550924) teaches the combiner adding a portion of the expanded voice signal to the input signal (Fig. 1, subblock 18)

As per claim 20, Helf et al (5550924) teaches signal based amplification (col. 4 lines 25-33)

As per claims 21,68, Helf et al (5550924) teaches envelope based amplification (col. 4 lines 33-37)

As per claims 32,33, Helf et al (5550924) teaches both analog and digital filter (Fig. 1, col. 3 lines 65-67)

As per claims 34,53,54,57, Helf et al (5550924) teaches a method for enhancing intelligibility of voice information, comprising the steps of filtering at least a portion of a first signal....filtered signal (as filtering a portion of the first signal -- col. 3 lines 53-62);

"expanding at least a portion of the filtered signal.....approximates an inverse of loudness contours" as expanding the signal according to a spreading function to mimic the psychoacoustic curve (col. 4 lines 33-39).

Helf et al (5550924) does not explicitly teach using the envelope gain/amplitude of the filter in the signal processing, however, Lin et al (5953697) teaches this claimed feature (col. 2 lines 43-49). Therefore, it would have been obvious to one of ordinary skill in the art of signal processing to modify the teachings of Helf et al (5550924) with envelope gain because it would be advantageous to smoothen the speech parameters (Lin, col. 2 lines 49-50).

As per claims 37-42, Helf et al (5550924) teaches variable gain, envelope detection, power calculation, square root, and average peak (col. 4 lines 60-67, col. 5 line 5-20, col. 5 line 65 – col. 6 line 30).

As per claims 47,59, Helf et al (5550924) teaches aural filtering (as psychoacoustic masking – col. 4 lines 33-38).

As per claim 50, Helf et al (5550924) teaches reducing noise components via the combination of the aural filter with the speech expander (col. 4 lines 23-40).

As per claims 14,15,27,51,52 and 71, Helf et al (5550924) teaches user control to enable/disable, and output on a loudspeaker (col. 2 lines 53-65).

As per claim 66, Helf et al (5550924) teaches audio with a mixture of speech and noise (col. 3 lines 1-45).

Response to Arguments

3. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

4. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231
or faxed to:
(703) 872 9314,
(for informal or draft communications, please label "PROPOSED" or "DRAFT")
Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Opsasnick, telephone number (703)305-4089, who is available Tuesday-Thursday, 9AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Doris To, can be reached at (703)305-4827. The facsimile phone number for this group is (703)872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 2600 receptionist whose telephone number is (703) 305-4750, the 2600 Customer Service telephone number is (703) 306-0377.

mno
5/8/2004

DORIS H. TO
SUPERVISORY PATENT EXAMINER
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